7.5-7-7

Review

Inequalities

An **<u>inequality</u>** is a mathematical sentence that __*compares*__ __*expressions*__ .

To write an inequality, look for the following phrases to determine where to place the inequality symbol.

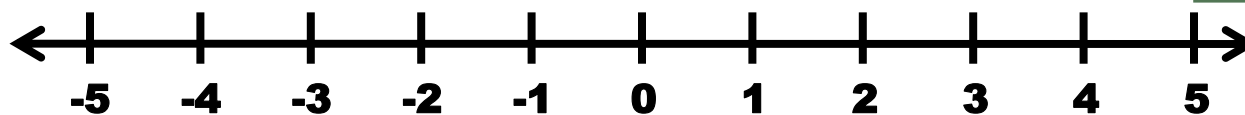| Inequality Symbols				
Symbol	**<**	**>**	**≤**	**≥**
Key Phrases	• is less than • is fewer than	• is greater than • is more than	• is less than or equal to • is at most • is no more than	• is greater than or equal to • is at least • is no less than

Writing Inequalities

Write the following as an inequality.

1)   A number *m* is greater than or equal to -11.

2)   A number *r* is less than 6.

3)   A number *d* is at most -19.

4)   A number *w* is fewer than 43.

5)   A number *u* is no less than -27.

6)   A number *z* is at least 7.

Practice

Inequality Symbols

$<$ **"Less than"** $\leq$ **"Less than or equal to"**

$>$ **"Greater than"** $\geq$ **"Greater than or equal to"**
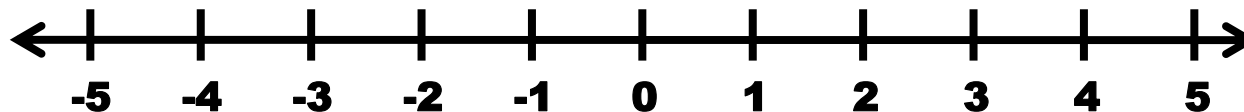
a) $x > -4$
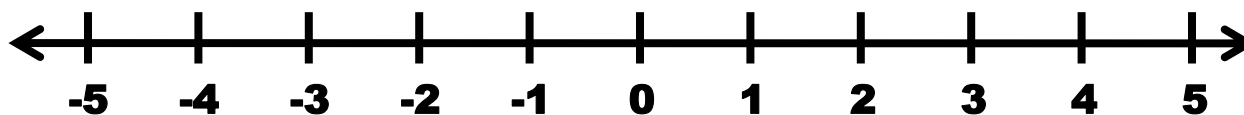
b) $x < -4$
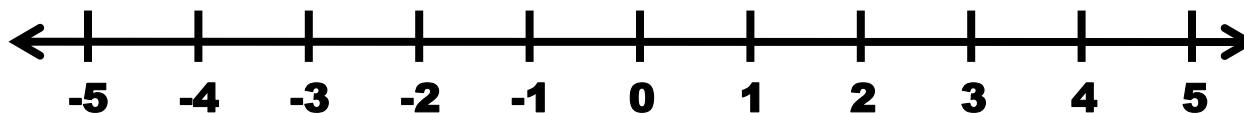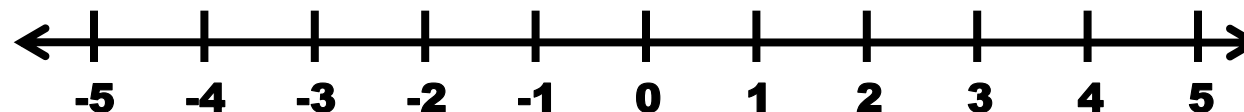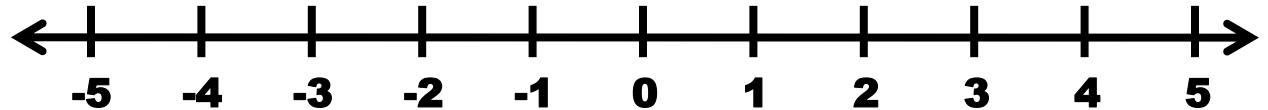
c) $x \geq -1$

d) $x \leq -1$

Solving Inequalities

Solving inequalities is just like solving regular equations...

Solve and graph the following:

1) $t - 5 < -2$
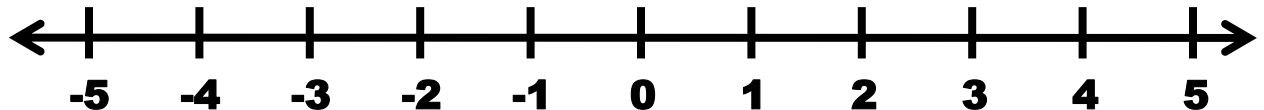
$$\xleftarrow{\quad} \overset{\text{-5}}{|} \quad \overset{\text{-4}}{|} \quad \overset{\text{-3}}{|} \quad \overset{\text{-2}}{|} \quad \overset{\text{-1}}{|} \quad \overset{\text{0}}{|} \quad \overset{\text{1}}{|} \quad \overset{\text{2}}{|} \quad \overset{\text{3}}{|} \quad \overset{\text{4}}{|} \quad \overset{\text{5}}{|} \xrightarrow{\quad}$$

2) $r - 8 \geq -5$

$$\xleftarrow{\quad} \overset{\text{-5}}{|} \quad \overset{\text{-4}}{|} \quad \overset{\text{-3}}{|} \quad \overset{\text{-2}}{|} \quad \overset{\text{-1}}{|} \quad \overset{\text{0}}{|} \quad \overset{\text{1}}{|} \quad \overset{\text{2}}{|} \quad \overset{\text{3}}{|} \quad \overset{\text{4}}{|} \quad \overset{\text{5}}{|} \xrightarrow{\quad}$$
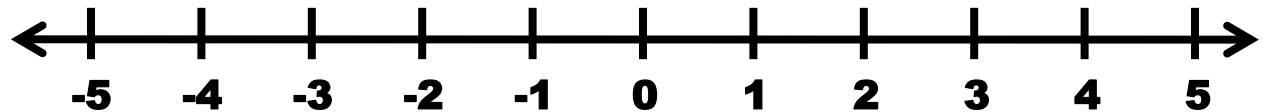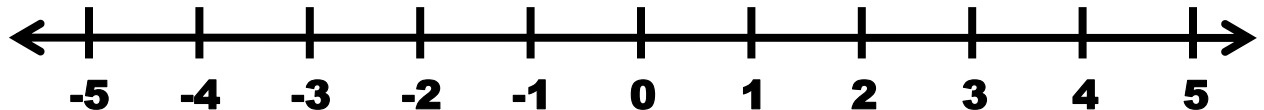
Solving Inequalities

Solving inequalities is just like solving regular equations…

Solve and graph the following:
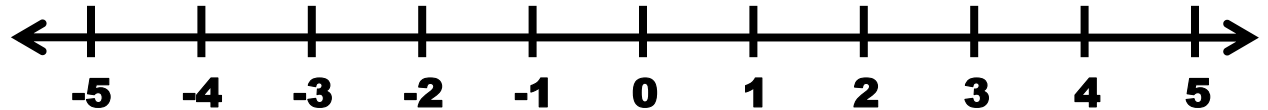
3) $y - 4 \geq -6$
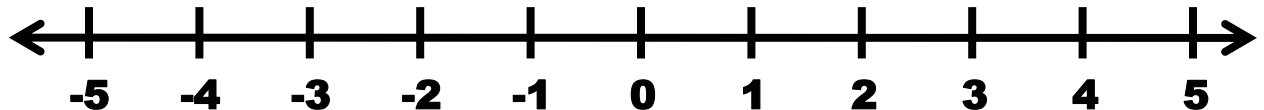

4) $-19 \geq w - 16$

Solving Inequalities

Solving inequalities is just like solving regular equations…
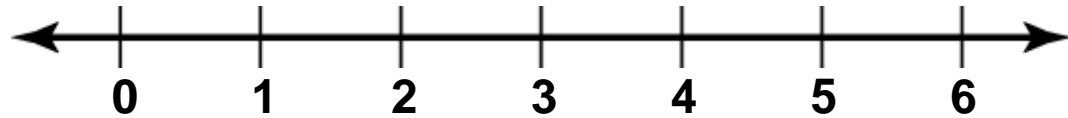
Solve and graph the following:

5) $t - 7 < -7$

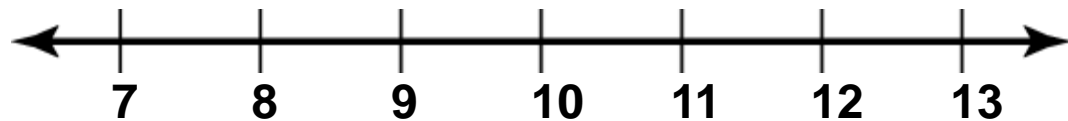6) $-4.6 > c - 2.4$

7) $5x > 15$

$$
\begin{array}{c}
\longleftarrow \quad | \quad | \quad | \quad | \quad | \quad | \quad | \longrightarrow \\
0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6
\end{array}
$$

8) $\dfrac{n}{-6} \leq 2$

$$
\begin{array}{c}
\longleftarrow \quad | \quad | \quad | \quad | \quad | \quad | \quad | \longrightarrow \\
7 \quad 8 \quad 9 \quad 10 \quad 11 \quad 12 \quad 13
\end{array}
$$

9) $-36 \leq 9k$

10) $-9 > \dfrac{n}{2}$
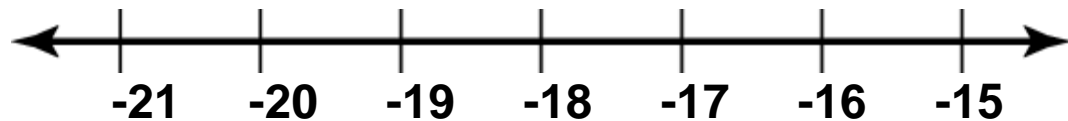
11) $\dfrac{d}{3} \geq 1.6$

12) $-26 > 1.3h$
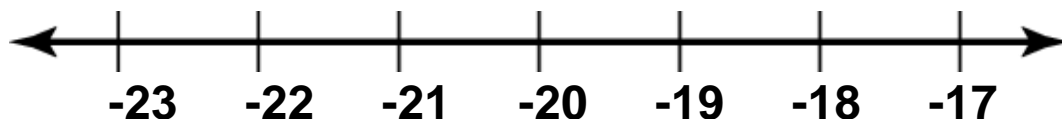
Solve and graph the following:

13) $\dfrac{1}{3}x \le 5$

12   13   14   15   16   17   18
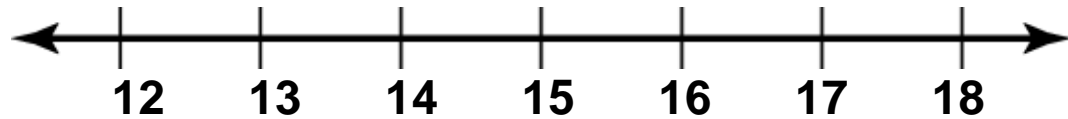
Word Problems

Write the word sentence as an inequality. Then solve the inequality.

14) Five times a number is less than -25.

16) The quotient of a number and -6 at least -3.